

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously amended) A cell comprising a nucleic acid molecule wherein said nucleic acid molecule comprises:

(a) one or more target binding domains that target binding of the nucleic acid molecule to a target pre-mRNA expressed within the cell; (b) a 3' splice region comprising a 3' splice acceptor site;

(c) a spacer region that separates the 3' splice region from the target binding domain; and

(d) a nucleotide sequence encoding a light producing protein or enzyme to be trans-spliced to the target pre-mRNA;
wherein said nucleic acid molecule is recognized by nuclear splicing components within the cell and wherein the light producing protein or enzyme activates a cytotoxic photosensitizer that causes cell death.

2. (original) The cell of claim 1 wherein the 3' splice region further comprises a branch point and a pyrimidine tract.

3. (previously amended) A cell comprising a nucleic acid molecule wherein said nucleic acid molecule comprises:

(a) one or more target binding domains that target binding of the nucleic acid molecule to a target pre-mRNA expressed within the cell;

(b) a 5' splice site;

(c) a spacer region that separates the 5' splice site from the target binding domain; and

(d) a nucleotide sequence encoding a light producing protein or enzyme to be trans-spliced to the target pre-mRNA;

wherein said nucleic acid molecule is recognized by nuclear splicing components within the cell and wherein the light producing protein or enzyme activates a cytotoxic photosensitizer that causes cell death.

4. (original) The cell of claim 1 or 2 wherein the nucleic acid molecule further comprises a 5' donor site.

5. (previously amended) A method of producing a chimeric mRNA molecule in a cell wherein said chimeric molecule expresses a light producing protein or enzyme comprising contacting a target pre-mRNA expressed in the cell with a nucleic acid molecule recognized by nuclear splicing components wherein said nucleic acid molecule comprises:

(a) one or more target binding domains that target binding of the nucleic acid molecule to a target pre-mRNA expressed within the cell;

(b) a 3' splice region comprising a 3' splice acceptor site;

(c) a spacer region that separates the 3' splice region from the target binding domain; and

(d) a nucleotide sequence encoding a light producing protein or enzyme to be trans-spliced to the target pre-mRNA;
under conditions in which a portion of the nucleic acid molecule is trans-spliced to a portion of the target pre-mRNA to form a chimeric mRNA within the cell wherein the light producing protein or enzyme activates a cytotoxic photosensitizer that causes cell death.

6. (original) The method of claim 5 wherein said 3' splice region further comprises a branch point and a pyrimidine tract.

7. (previously amended) A method of producing a chimeric mRNA molecule in a cell wherein said chimeric molecule expresses a light producing protein or enzyme comprising contacting a target pre-mRNA expressed within the cell with a nucleic acid molecule recognized by nuclear splicing components wherein said nucleic acid molecule comprises:

(a) one or more target binding domains that target binding of the nucleic acid molecule to a target pre-mRNA expressed within the cell;

(b) a 5' splice site;

(c) a spacer region that separates the 5' splice site from the target binding domain; and

(d) a nucleotide sequence encoding a light producing protein or enzyme to be trans-spliced to the target pre-mRNA;
under conditions in which a portion of the nucleic acid molecule is trans-spliced to a portion of the target pre-mRNA to form a chimeric mRNA within the cell wherein the light producing protein or enzyme activates a cytotoxic photosensitizer that causes cell death.

8. (original) The method of claim 5 or 6 wherein the nucleic acid molecule further comprises a 5' donor site.

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13. (original) A method for targeting cell death comprising:

(i) contacting said cell with a nucleic acid molecule wherein said nucleic acid molecule comprises:

- a) one or more target binding domains that target binding of the nucleic acid molecule to a target pre-mRNA expressed within the cell;
- b) a 3' region comprising a 3' splice acceptor site;
- c) a spacer region that separates the 3' splice region from the target binding domain; and

d) a nucleotide sequence encoding a light producing protein enzyme to be trans-spliced to the target pre-mRNA; wherein said nucleic acid molecule is recognized by nuclear splicing components within the cell; and

(ii) placing a photosensitizer in close enough proximity to the cell to permit activation of the photosensitizer by the light producing enzyme, wherein said activation results in cell death.

14. (original) The method of claim 13 wherein said 3' splice region further comprises a branch point and a pyrimidine tract.

15. (original) A method for targeting cell death comprising:

(i) contacting said cell with a nucleic acid molecule wherein said nucleic acid molecule comprises:

a) one or more target binding domains that target binding of the nucleic acid molecule to a target pre-mRNA expressed within the cell;

b) a 5' splice site;

c) a spacer region that separates the 3' splice region from the target binding domain; and

d) a nucleotide sequence encoding a light producing protein enzyme to be trans-spliced to the target pre-mRNA; wherein said nucleic acid molecule is recognized by nuclear splicing components within the cell; and

(ii) placing a photosensitizer in close enough proximity to the cell to permit activation of the photosensitizer by the light producing enzyme, wherein said activation results in cell death.

16. (original) The method of claim 13 or 14 wherein the nucleic acid molecule further comprises a 5' donor site.

17. (original) The method of claim 13, 14 or 15 further comprising contacting said cell with a substrate specific for the light producing protein or enzyme.

18. (original) The method of claim 16 further comprising contacting said cell with a substrate specific for the light producing protein or enzyme.

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27. (previously amended) A method for targeting cell death comprising contacting said cell with a conditionally replicative adenovirus capable of encoding a light producing enzyme or protein.